

No. 669,979.

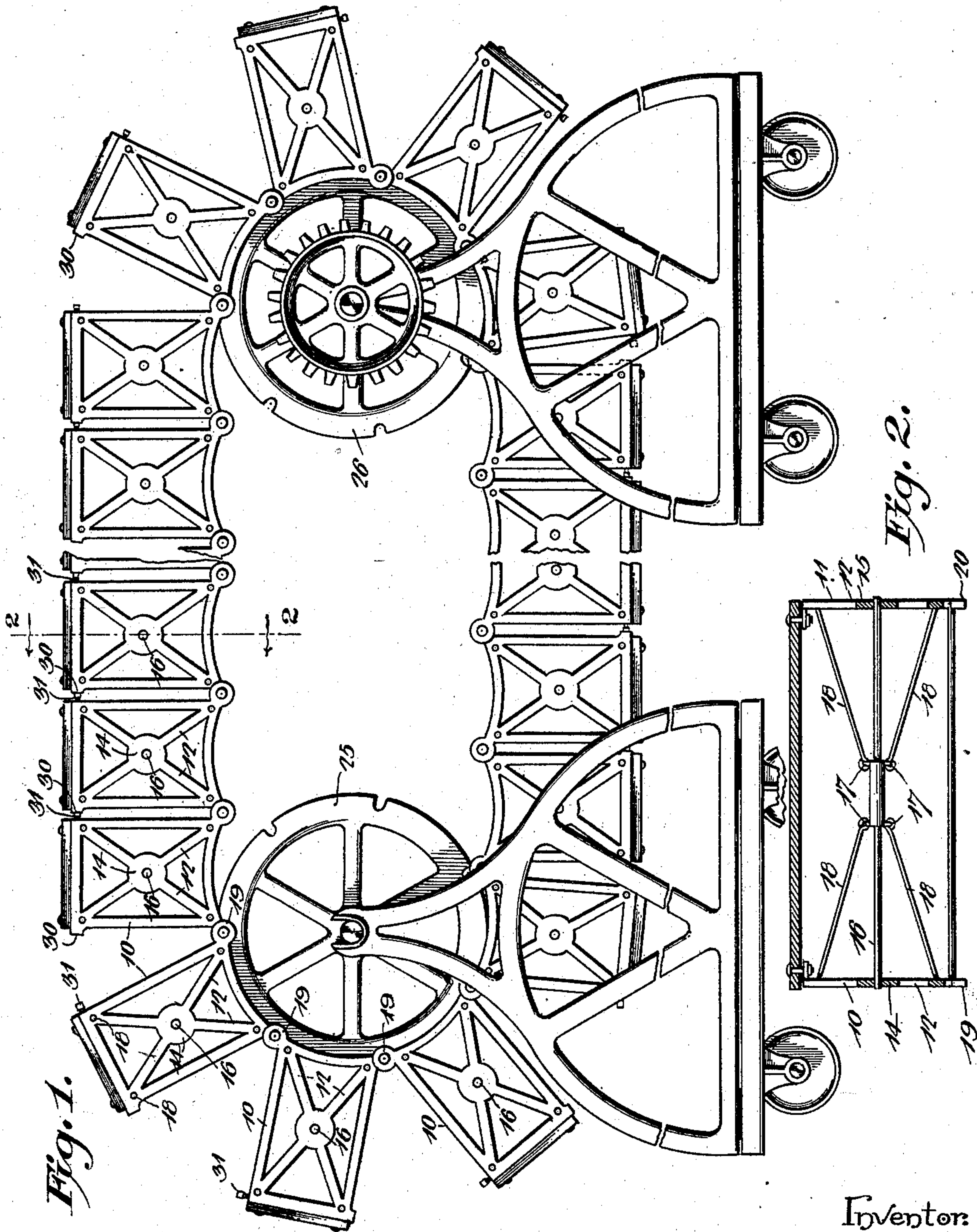
Patented Mar. 19, 1901.

E. T. BUCKNAM.
CONVEYER CHAIN.

(Application filed Apr. 11, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses
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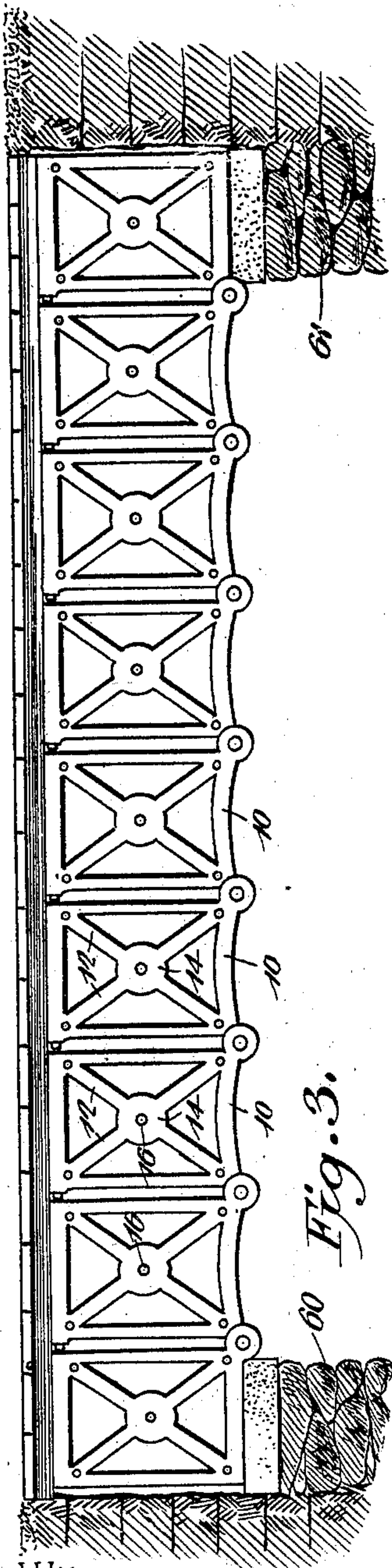


Fig. 3.

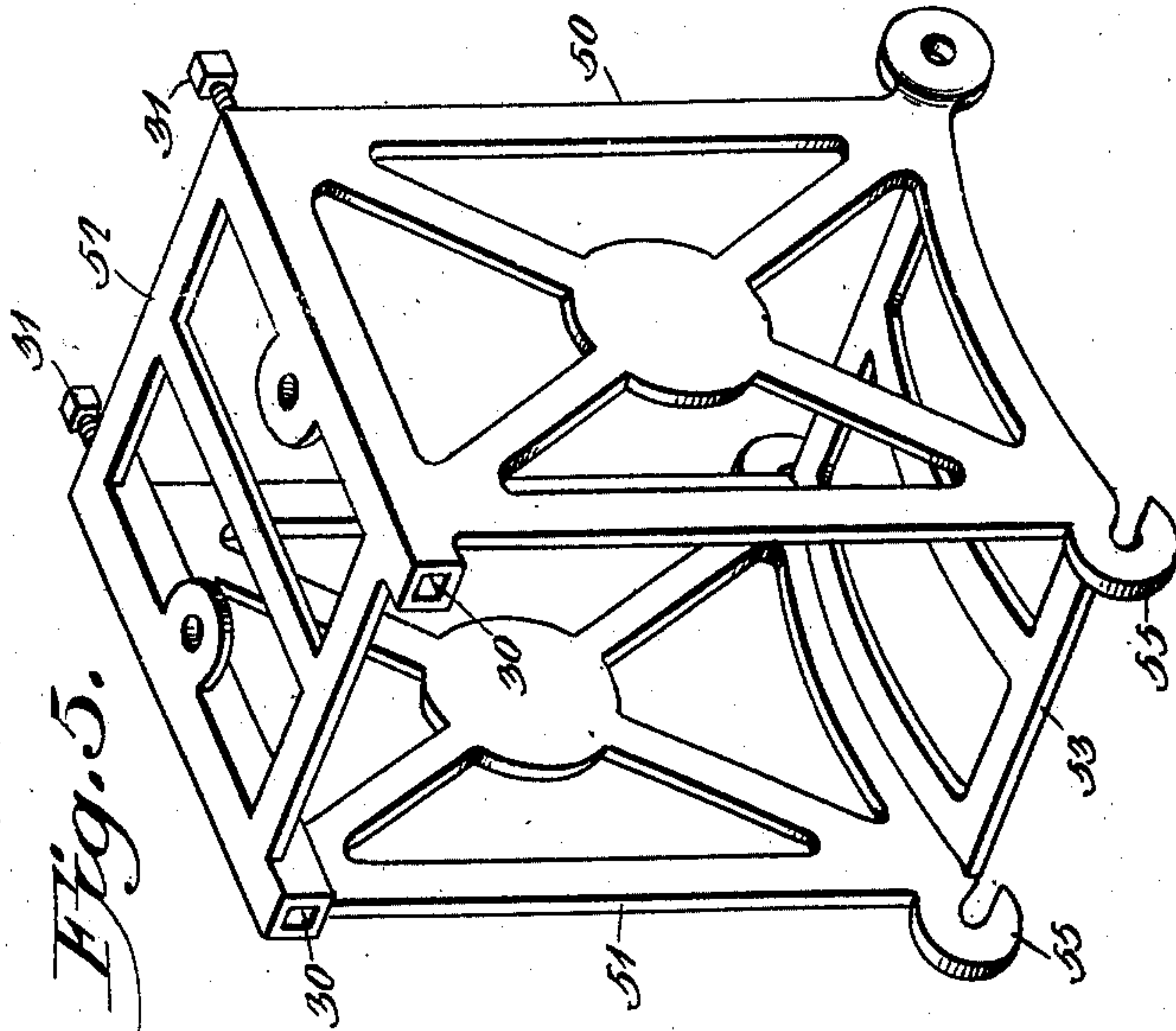


Fig. 5.

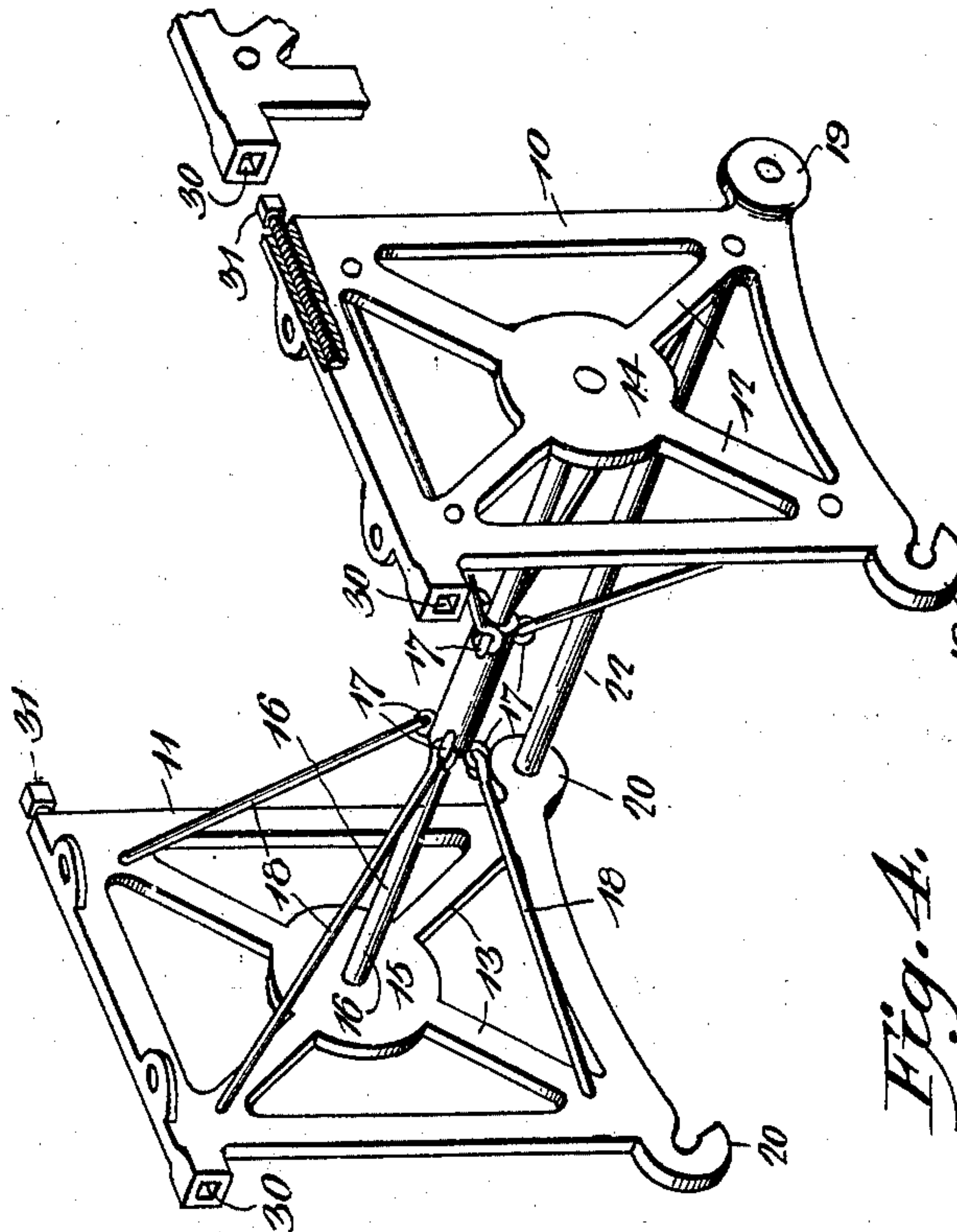


Fig. 4.

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UNITED STATES PATENT OFFICE.

EZRA T. BUCKNAM, OF TULARE, CALIFORNIA.

CONVEYER-CHAIN.

SPECIFICATION forming part of Letters Patent No. 669,979, dated March 19, 1901.

Application filed April 11, 1900. Serial No. 12,474. (No model.)

To all whom it may concern:

Be it known that I, EZRA T. BUCKNAM, a citizen of the United States, residing at Tulare, in the county of Tulare, State of California, have invented a new and useful Conveyer-Chain, of which the following is a specification.

This invention relates to chains in general, and more particularly to conveyer-chains, although the principles involved are applicable to other structures, as will be readily understood from the following specification, one object of the invention being to provide a construction in which the chain between the drums will be prevented from sagging and in which, moreover, the chain between the drums may be caused to assume the form of an arch, whereby the strength of the chain will be greatly enhanced.

Further objects and advantages of the invention will be apparent from the following description.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a side elevation showing a conveyer-chain constructed in accordance with the present invention and mounted upon its operating-drums. Fig. 2 is a section through one of the links of the chain, said section being taken on line 2 2 of Fig. 1. Fig. 3 shows an embodiment of the invention employed in bridge construction. Fig. 4 is a perspective view showing a form of link that is similar to those shown in the foregoing figures. Fig. 5 is a perspective view of a further modification of link.

Referring now to the drawings, and more particularly to Figs. 1, 2, and 4 thereof, each link comprises two parallel side plates 10 and 11, which are similar in form and construction, each of the plates consisting of a rectangular and preferably oblong frame having diagonal braces 12 and 13, respectively, and at the center of each plate is formed a preferably annular hub 14 and 15, respectively. The hubs are perforated centrally, and with these perforations are engaged the ends of a connecting or brace rod 16, the ends of which are headed over to prevent withdrawal. In order to hold the plates 10 and 11 at right angles to the brace-rod 16 and at

the same time to prevent rotation of the plates with respect to the rod, a sleeve or enlargement is secured to or formed upon the brace-rod intermediate its ends, and this enlargement is provided with radially-extending and perforated ears 17, with which are engaged the hooked ends of tie-rods 18, having their opposite ends passed through the diagonal braces 12 and 13, adjacent the outer ends of the latter, and to which diagonal braces the tie-rods are secured by heading or upsetting. The links in their operative positions lie with their major dimensions approaching the vertical, as shown in Fig. 1 of the drawings, and in order to hold the several links together to form the complete chain circular ears 19 are formed at the lower corners of the plate 10, while similar and corresponding ears 20 are formed upon the plate 11. These ears are perforated, as shown, and with the perforations of the ears at one end of the link is engaged a shaft 22. The ears 19 and 20 at one side of the completed link lie with their outer faces flush with the outer face of the link, while the other ears of each link lie with their inner faces in the plane of the outer faces of the plates, whereby the ears of one link may at one side of the link receive between them the adjacent ears of the succeeding link, the ears being held in this position by engagement with the shaft 22. The several links are thus pivotally connected. These links are in this manner formed into an endless chain, which is mounted upon sprocket-drums 25 and 26, and the inner side of each link is arc-shaped to conform to the curvature of each drum, so that it may lie snugly thereagainst in the operation of the conveyer.

In a structure of this nature it is of course necessary at times to convey bodies of great weight, this excessive weight tending to break the chain and, in fact, at times utterly destroying it, because of the lack of support for the chain between the sprocket-drums. To provide against this, provision is made for causing the chain to assume an arch from one drum to another and at the upper sides thereof. To permit this arch formation, each of the plates 10 and 11 at corresponding upper corners is provided with a socket 30, and these sockets are disposed for engagement by the heads of

screws 31, which are engaged with threaded perforations in the adjacent upper corners of the adjacent links, as shown in Fig. 3. As the chain passes from one drum to travel to the next in an upright position the head of each screw of each link as it leaves a drum engages the recess of the next link in advance thereof. By adjustment of the screws to project to a greater extent the engagement of the screws with the recesses will occur before the lower side of the link has reached the common upper tangent of the sprocket-drums, and the result will be an upwardly-ranging arch springing from one of the drums to the other. The result of this arrangement is that instead of the weight upon the arch of the conveyer exerting a transverse breaking strain it will act to compress the links after the manner of a weight upon an arch of bricks. Furthermore, in moving the conveyer the rear drum 26 acts to push the links, while the forward drum pulls, and a stronger construction and better application of power to the upper portion of the chain is secured, it being understood that the drum 25 is rotated by the pull of the lower portion of the chain.

The planks of the conveyer are secured with their ends or end portions upon the outer ends of the end plates 10 and 11 and are held in place by bolts engaged with ears upon the plates or in any other suitable manner.

In Figs. 3 and 5 of the drawings the invention is shown as applied to bridge construction, Fig. 5 showing a modification of the link, in which the side plates 50 and 51 are formed integral with connecting cross-pieces 52 and 53 at their upper and lower ends, respectively. Furthermore, in this construction the ears 55 at one end of the link are shown as slotted for engagement over the pivot-rod of the adjacent link.

It will of course be understood that in practice any additional bracing may be employed for the link shown in Fig. 5 and also that further modifications of the invention may be made without departing from the spirit of the invention.

In Fig. 3, which illustrates the bridge structure, 60 and 61 are the abutments of a bridge upon which the end links rest, the intermediate links being mutually connected by the pivot-rods engaging the ears of the links, and it will of course be seen that by properly adjusting the screws in the ends of

the links in the building of the bridge any desired curvature may be given to the bridge. Furthermore, any suitable materials and proportions may be employed for the various parts of the structure.

In the form of link employed in bridge construction it is of course not necessary that the lower side of the link be arc-shaped, as is required when used as a conveyer-chain.

What is claimed is—

1. A conveyer-chain comprising links pivotally connected, and adjustable screws engaged with the adjacent links to limit the pivotal movements of the links.

2. A device of the class described comprising a series of links which are pivotally connected at one side and are unconnected at their opposite sides, each of the links having an angular socket and an angular-headed adjustable screw at opposite ends of its unconnected side, the screw of one link being adapted for engagement of its head with the socket of a succeeding link to hold the unconnected sides of the links spaced and prevent adjustment of the screws when the head of the screw is engaged with the socket.

3. A conveyer comprising drums and a chain mounted upon the drums and movable therewith, said chain including links which are pivotally connected at points and are disconnected at other points exterior thereto, and adjustable screws engaged with the links at the last-named points and adapted for contact each with the adjacent link to hold said remote points separated to different degrees, whereby the links may be caused to describe an arch springing from the drums, and whereby the curvature of the arch may be varied.

4. A link for conveyer-chains, comprising side plates, each including a rectangular frame, a brace-rod connecting the plates centrally thereof, tie-rods connected with the brace-rod and with the plates, and additional brace-rods engaged with the plates and adapted for pivotal engagement of an adjacent link.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

EZRA T. BUCKNAM.

Witnesses:

W. M. DE WITT,
C. S. JORDAN.